Remarks/Arguments

Claims 1-30 are pending. In the Office Action mailed April 4, 2007, the Examiner rejected claims 1, 5-11, 13, 17, 20-25, 27, 29 and 30 under 35 U.S.C §102(b) as anticipated by Yamaguchi et al. (U.S. Patent No. 5,777,644), rejected claims 2 and 15 under 35 U.S.C. §103(a) as unpatentable over Yamaguchi in view of Darty (U.S. Patent No. 6,312,110), rejected claims 3-4 under 35 U.S.C. §103(a) as unpatentable over Yamaguchi and Darty in further view of Takahashi (U.S. Patent No. 6,695,439), rejected claims 12 and 26 under 35 U.S.C. §103(a) as unpatentable over Yamaguchi in further view of Shima et al. (U.S. Patent No. 5,801,730), and rejected claims 14 and 28 under 35 U.S.C. §103(a) as unpatentable over Yamaguchi in further view of Mutou (U.S. Patent No. 5,227,814).

Applicant has amended independent claims 1, 16, 17, 29 and 30, and dependent claims 6, 7, 8, 9, 13, 18, 20, 21, 22 and 23. Specifically, Applicant amended the independent claims to recite that an electric field controls a rate of discharge of the electrorheological ink through the nozzle. This limitation was included in originally filed independent claim 15. Applicant also amended dependent claims 6, 7, 8, 9, 18, 20, 21 and 22 to correct typographical errors and to synchronize the claim language with the amendments made to the independent claims. Applicant respectfully traverses the rejections and requests reconsideration and withdrawal thereof.

35 U.S.C. §102(b) and 35 U.S.C. §103(a) Rejections of All Claims

The Examiner rejected all claims over Yamaguchi, or Yamaguchi in various combinations with other prior art of record. Applicant respectfully traverses the rejections, and requests reconsideration and withdrawal thereof. The rejections will be discussed in regard to amended independent claim 1.

Amended independent claim 1 recites an apparatus for electrorheological printing. The apparatus comprises a pressurized ink chamber configured to contain an electrorheological ink. The pressurized ink chamber is in fluid communication with a nozzle. The apparatus further comprises a stimulator configured to generate a synchronization signal to increase the pressure in the pressurized ink chamber. The apparatus further comprises an electrode arrangement configured to create an electric

field to control a rate of discharge of the electrorheological ink through the nozzle. The electric field changes the viscosity of the electrorheological ink such that the rate of discharge through the nozzle may be slowed or completely stopped.

By contrast, Yamaguchi discloses an ink jet recording apparatus with electrorheological ink with a changeable apparent viscosity (Abstract of Yamaguchi). Electrodes 6A and 6B are arranged along the longitudinal direction of the discharging port 2 (i.e., the nozzle) such that each pair of electrodes 6A and 6B are arranged along a direction perpendicular to the ink discharge direction (col. 3, lines 61-64 of Yamaguchi). Electrodes 6A and 6B create an electric field which changes the viscosity of ink between electrodes 6A and 6B such that a wall is defined perpendicular to discharging port 2 (col. 4, lines 23-37 of Yamaguchi). Thus, two pairs of electrodes 6A and 6B may be used to define walls of a temporary channel 9D in a common fluid chamber 5 for directing the flow of ink through channel 9D into a corresponding nozzle. The walls may then be removed by removing the electric field (i.e., de-energizing electrodes 6A and 6B) such that the viscosity of the ink exposed to the electric field decreases and the ink becomes free to flow around chamber 5.

Electrodes 6A and 6B of Yamaguchi don't change a rate of discharge of ink through a nozzle. Rather, electrodes 6A and 6B control where the ink flows in a chamber attached to a nozzle. Because of the direction and orientation of the electric field generated by electrodes 6A and 6B of Yamaguchi, the electric field of Yamaguchi can't slow or stop a flow of ink through a nozzle. By contrast, the apparatus of claim 1 creates an electric field which can change the rate of discharge through the nozzle (e.g., can slow a flow or stop a flow).

Because pairs of electrodes 6A and 6B disclosed by Yamaguchi create an electric field perpendicular to a discharging port 2, the electric field is not applied to electrorhelogical ink between two pairs of electrodes 6A and 6B (i.e., between the temporary walls). Thus, electrodes 6A and 6B disclosed by Yamaguchi don't change a rate of discharge of electrorhelogical ink through the nozzle. Thus, Applicants submit that Yamaguchi does not teach the apparatus of amended claim 1.

At least these same arguments also apply to amended independent claims 1, 16, 17, 29 and 30. At least these same arguments also apply to originally filed independent

claim 15. These same arguments also apply to dependent claims 2-14 and 18-28. Dependent claims 2-14 and 18-28 also include additional limitations not disclosed by the prior art of record, considered individually, or in any combination.

Conclusion

Applicant maintains that all independent claims 1, 15, 16, 17, 29 and 30 are now allowable over all prior art of record (considered individually or in any combination). Further, remaining dependent claims 2-14 and 18-28 are also allowable for the same reasons discussed above and as depending from allowable base claims. Still further, dependent claims 2-14 and 18-28 recite additional limitations not disclosed by the prior art. Applicant therefore respectfully requests reconsideration and withdrawal of the rejections.

Respectfully submitted,

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/Max S. Gratton/

Max S. Gratton (Reg. No 56,541)
Duft, Bornsen & Fishman, LLP
1526 Spruce Street, Suite 302
Boulder, CO 80302
(303) 786-7687
(303) 786-7691 (fax)